

The PURPLE Pancreatic cancer Translational Registry: Creating a Digital Platform to Accelerate Pancreatic Cancer Research

Belinda Lee^{1,2,3,4,5,11}, Rachel Wong^{6,7,8}, Brett Knowles^{2,4,6}, Sumitra Ananda^{1,2,4,6,10}, Ross Jennens^{4,6}, Allan Zimet⁶, Ben Thomson^{2,3,4}, Julia Shapiro^{8,9}, Lara Lipton^{1,2,4,9,10}, Sue-Ann McLachlan¹², Mehrdad Nikfarjam^{13,14}, Niall Tebbutt^{13,14}, Prasad Cooray^{6,15}, Marion Harris¹⁶, Daniel Croagh^{6,8,16}, Matthew Burge¹⁷, Adnan Nagrial¹⁸, David Goldstein¹⁹, Rob Zielinski^{20,21}, Fiona Day²², Desmond Yip²³, Amitesh Roy²⁴, Christopher Lomma²⁵, Craig Underhill²⁶, Kate Clarke²⁷, Sharon Pattison²⁸, Cheng Ean Chee²⁹, Tracy Putoczki¹, Sean Grimmond³, Fred Hollande³, Tony Burgess¹, Peter Gibbs^{1,2,3}

1. Walter & Eliza Hall Institute, VIC, 2. The Royal Melbourne Hospital, VIC, 3. University of Melbourne, VIC, 4. Peter MacCallum Cancer Centre, VIC, 5. Northern Health, VIC, 6. Epworth Hospital, VIC, 7. Eastern Health, VIC, 8. Monash University, VIC, 9. Cabrini Health, Malvern, VIC, 10. Western Health, VIC, 11. Melbourne Private Hospital, VIC, 12. St Vincents Hospital, VIC, 13. Austin Health, ONJCI, VIC, 14. Warringal Private Hospital, VIC, 15. Knox Private Hospital, VIC, 16. Monash Medical Centre, VIC, 17. Royal Brisbane & Womens' Hospital, QLD, 18. Westmead Hospital, NSW, 19. Prince of Wales Hospital, NSW, 20. Dubbo Base Hospital, NSW, 21. Orange Hospital, NSW, 22. Calvary Mater Hospital, NSW, 23. Canberra and Calvary Hospitals, ACT, 24. Flinders Hospital, SA, 25. Fiona Stanley Hospital, WA, 26. Border Medical Oncology, NSW, 27. Wellington Hospital, New Zealand, 28. Dunedin University Hospital, New Zealand, 29. National University Hospital, Singapore



Introduction

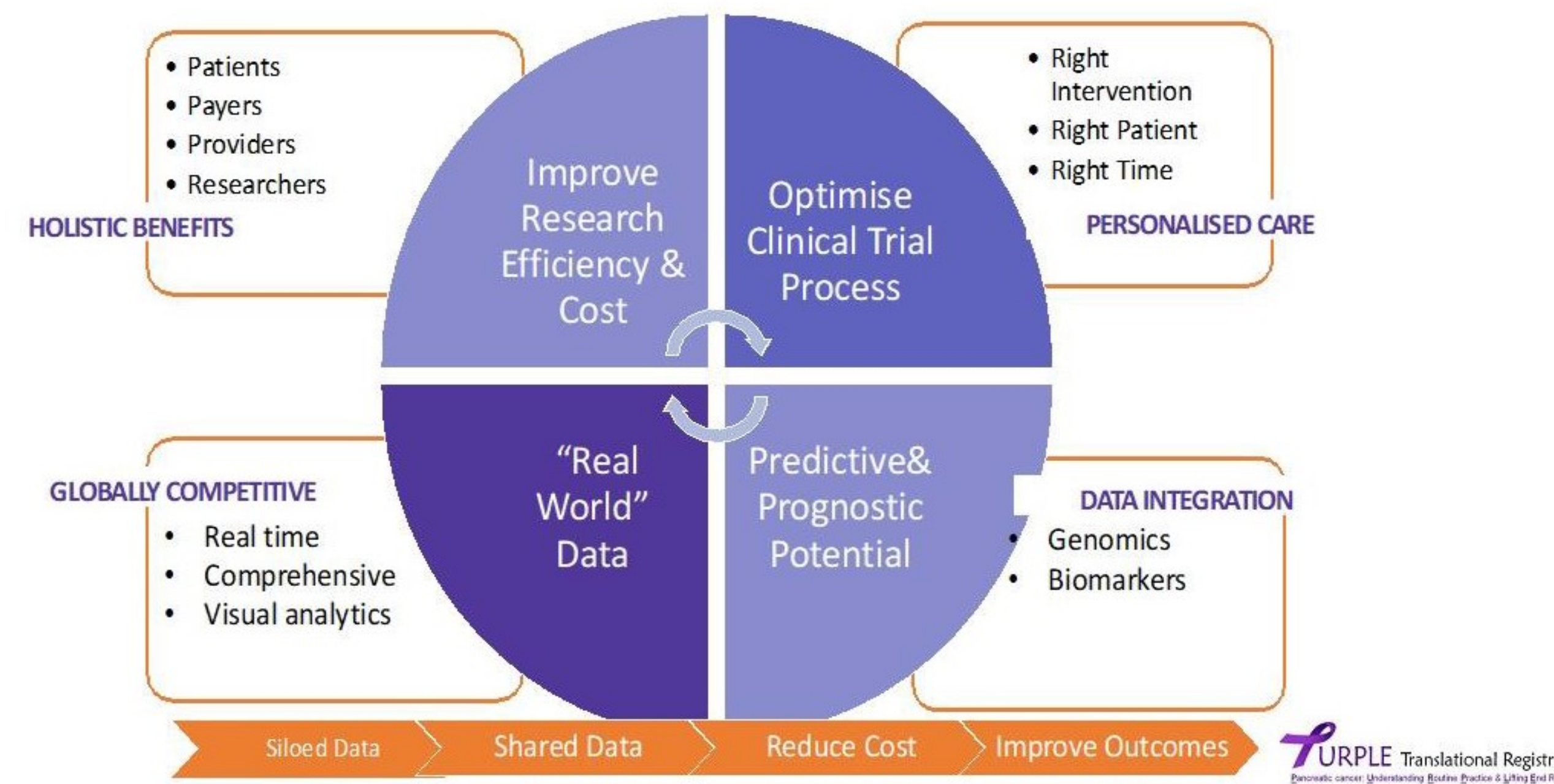
- The PURPLE Translational Registry is an international multi-site prospective digital platform that collates "Real-World" data from public, private, urban and regional centres to inform our understanding of pancreatic ductal adenocarcinoma (PDAC) management
- Established in 2016, this collaborative initiative spans 29 centres across Australia, New Zealand and Singapore.
- The PURPLE registry consolidates de-identified clinical and research data on a unique data-sharing platform to enable a diverse range of research activities.

Methodology

- Powered by Biogrid technology this federated platform allows de-identified data and meta-data to be combined, whilst maintaining privacy, confidentiality and data security.
- All data is given a unique participant identified and de-identified (enabling linkage of the same participant across multiple projects, if required)
- Key clinicopathological and outcome data covering all stages of PDAC is collected via an electronic web-based platform.
- Translational research including ctDNA, and multiple "omics" platforms is tracked alongside the matched clinical data

Aims

- To improve data sharing and collaboration across laboratories and cancer centres
- To provide a single integrated system and resource for large-scale clinical informatics and translational research
- To provide a platform to accelerate research in PDAC

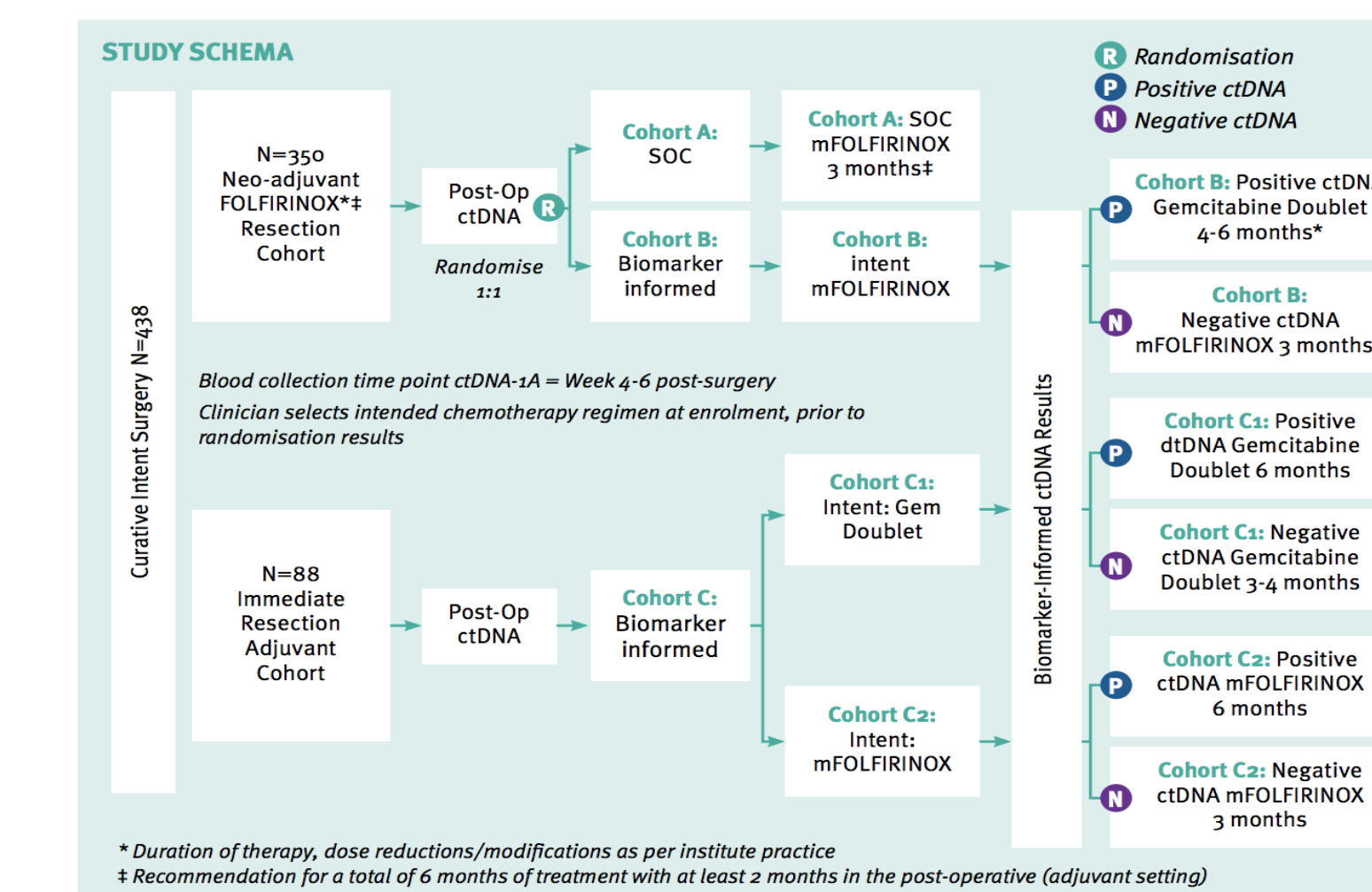


Results

- Between Jan 2016 - July 2020, data on 1718 PDAC patients with pathological details for 467 resection specimens, 529 matched biospecimens including tissue, ctDNA, serum and PBMCs have been recorded in the virtual tissue repository.
- Of the 1718 patients at initial presentation, 540 (31%) had resectable disease, 178 (10%) were categorized as borderline resectable, 336 (20%) locally advanced unresectable, and 664 (39%) presented with metastatic disease

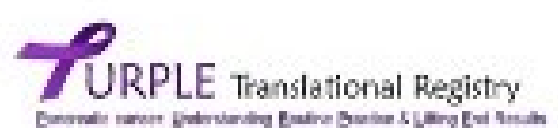
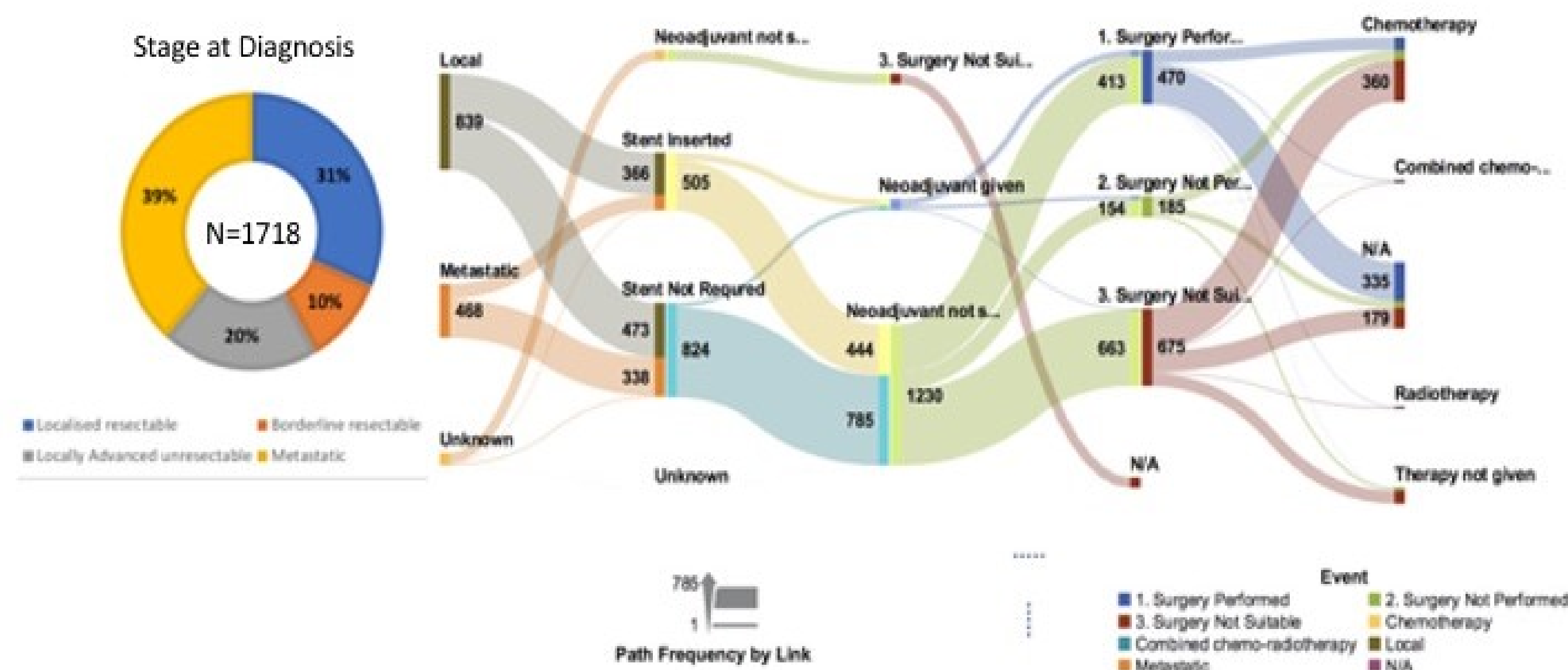
Integrating Translational Research

- PURPLE supports projects in genomics, circulating tumour DNA, pancreatic cancer organoids and biomarker discovery.



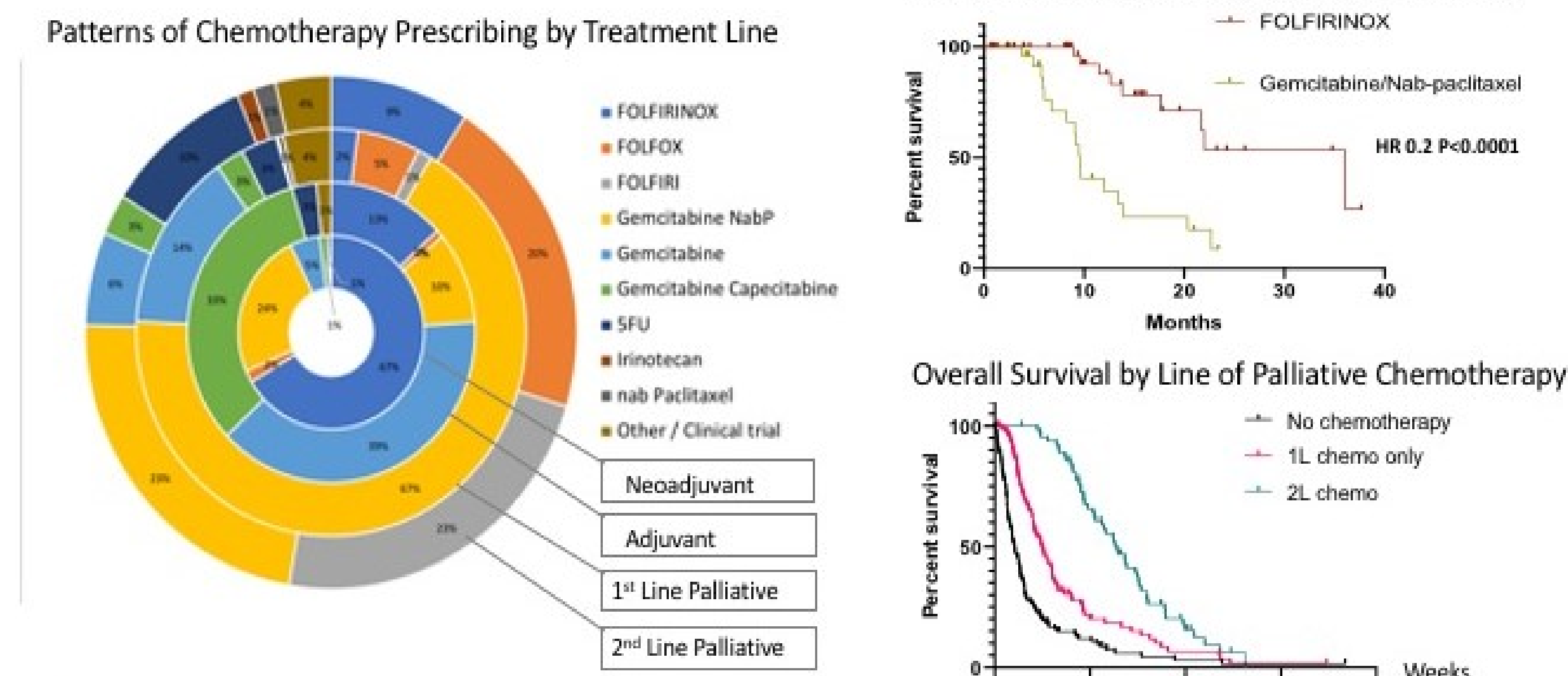
- DYNAMIC-Pancreas Trial is investigating the utility of circulating tumour DNA (ctDNA) in early stage PDAC to risk stratify and personalize chemotherapy treatment

Overview of Entire Patient Journey



Legend: A. Pie chart of disease stage a diagnosis
B. Sankey diagram of procedures over course of patients' journey

Insights into Chemotherapy Patterns



Legend: A. Sunburst diagram of all chemotherapy regimens administered in each treatment line. B. Kaplan Meier Survival Curves comparing outcomes by Neoadjuvant chemotherapy & by lines of palliative chemotherapy use

Conclusions

- By combining clinical data with translational research, the PURPLE registry ensures that every patient's experience informs research and improves care.

